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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/790,336

03/01/2004

Gilbert P. Brunette

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08/04/2005

IPLM GROUP, P.A.

POST OFFICE BOX 18455

MINNEAPOLIS, MN 55418

EXAMINER

JONES, STEPHEN E

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/790,336

Applicant(s)

BRUNETTE ET AL.

Examiner

Stephen E. Jones

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27, 30 and 31 is/are rejected.
- 7) ☒ Claim(s) 28 and 29 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/4/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 21, 24, and 25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claimed "at least one first conductive trace on said first conductive layer not having said grounded metal layer underneath and said second ground extension section corresponding to a section of said at least one second conductive trace on said second conductive layer not having said grounded metal layer above" is not disclosed so as to enable one skilled in the art to be able to make the invention (e.g. Figs. 4 and 5 show that the grounded metal layers (e.g. 440 and 445) are below and above the traces (e.g. 475, 490) but do not show where the claimed above and below portions do not have the grounded metal layer).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-8, 22-27, and 30-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Josefsson et al.

Josefsson teaches a multilayer microwave (i.e. RF) interconnection structure including: a first signal conductor (i.e. a trace) (21) having a collar pad (24a); a second conductive trace (41) connected to a second collar pad (35); a signal via (24) between the traces (Claim 6); a plurality of ground vias (12, 43) surround the signal via; the device provides impedance matching thus inherently the position of the ground vias relative to the signal via is based upon the overall desired impedance, the ground vias have a diameter based upon the overall desired impedance, and the signal via has a diameter based on the overall desired impedance for the device to be impedance matched (Claims 1, 4, 5, 8, 22, and 30); the vias have the same diameters (e.g. see Fig. 4) (Claim 2, 7); the ground vias are the same distance apart from the signal via (Claim 3); a grounded metal layer (31) having an area pulled away from the signal via inherently provides a ground return path (Claim 23); the grounded layer has extensions at the edge of the via that extend into the pullback region (e.g. see Fig. 3, layer 31) (Claims 24-25, Josefsson appears to show the same orientation as the present invention); the radius of the pullback section is greater than the via (e.g. see Fig. 3) (Claim 26); the ground vias and the edge of the signal conductor via extend beyond the second conductive trace (Claim 27); and the radius of the ground pullback is greater than the pads (Claim 31).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Josefsson et al. in view of Fazelpour.

Josefsson teaches an interconnection as described above, but does not teach that the signal via and the ground vias have different diameters.

Fazelpour provides the general teaching that reducing the pitch by increasing the diameter of grounded/reference vias can lower a signal via impedance (e.g. see Col. 5, lines 4-11).

It would have been considered obvious to one of ordinary skill in the art to have adjusted the diameter of the ground vias such as taught by Fazelpour in the Josefsson

device, because it would have provided the advantageous benefit of a well-known means for adjusting the impedance to compensate for the inductance of the via for impedance matching, thereby suggesting the obviousness of such a modification.

8. Claims 10-17 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindenmeier et al. in view of Josefsson et al.

Lindenmeier teaches an RF communication system including an antenna selection system (e.g. see Fig. 1a), but does not teach the particular interconnection between the antennas (e.g. A1, A2) and the logic switch (2) including the particulars of the presently claimed interconnection.

Josefsson teaches the particular interconnection as described above (including the subject matter of Claims 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, and 21).

It would have been considered obvious to one of ordinary skill in the art to have substituted interconnections such as taught by Josefsson in place of the generic interconnections of Lindenmeier, especially since Lindenmeier is not specific as to the interconnection means and it would have been a mere substitution of a specific well-known antenna connection means for RF signal communications.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lindenmeier et al. and Josefsson et al. as applied to claim 10 above, and further in view of Fazelpour.

The combination of Lindenmeier and Josefsson teaches an interconnection circuit as described above, but do not teach that the signal via and the ground vias have different diameters.

Fazelpour provides the general teaching that reducing the pitch by increasing the diameter of grounded/reference vias can lower a signal via impedance (e.g. see Col. 5, lines 4-11).

It would have been considered obvious to one of ordinary skill in the art to have adjusted the diameter of the ground vias such as taught by Fazelpour in the Lindenmeier/Josefsson device, because it would have provided the advantageous benefit of a well-known means for adjusting the impedance to compensate for the inductance of the via for impedance matching, thereby suggesting the obviousness of such a modification.

Allowable Subject Matter

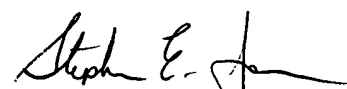
10. Claims 28-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen E. Jones whose telephone number is 571-272-1762. The examiner can normally be reached on Monday through Friday from 8 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SEJ


STEPHEN E. JONES
PRIMARY EXAMINER